DETAILED RESPONSE TO USPTO ACTION

Information Disclosure Statement

1. We understand that the listing of references in the specification has not been considered as part of the information disclosure statement. However, we would like to leave the listing of references as a part the "background of the invention" section since it does not contradict any regulations, as indicated by the examiner during a phone interview.

Drawings

2. This point is resolved by amendment number 18 to the specification text, which can be found in the enclosed list of amendments. No changes were made to the fig. 2.

Specification

3. This point is resolved by amendment number 24. The same amendment modifies the abstract to comply with 150 word limit.

4. The double quotation mark issue is resolved by amendments 2, 4 and 20.

The "comprises of" and "comprising of" text has been changed by amendments 5 and 11.

The reference to FIG. 2 problem has been resolved by amendments 14, 15, 16, 17.

The word "peace" has been changed to "piece" by amendment 12.

The word "lye" has been changed to "lie" by amendment 17.

The word "doe" has been changed to "due" by amendment 19.

Claim Objections

5. Entire set of claims is replaced with a clean version as described in detail in amendment 25. Claims have been modified to be in one sentence form. Claims are organized in such a manner as to present a complete operative device.

6. Claim 18 has been canceled as part of amendment 25 and replaced with an equivalent claim 1 in the new set of claims as the only independent claim.

Claim 13 has been canceled as part of amendment 25 and replaced with an equivalent claim 2 in the new set of claims which includes every limitation of the claim on which it depends.

7. Claims 5-12, 15-17, 19-20, 23, 25 have been canceled by amendment 25 and replaced by a clean set of claims. The new set of claims does not contain any multiple dependent claims that depend from any other multiple dependent claims.

Claim Rejections

8. No response is necessary on this point.

9. The invention claimed in original application's claims 1-2, 4, 13-14 and 18 is different from what is claimed by Mashitani et al., U.S. Patent No. 5,663,831. The summary of differences

between the two inventions is outlined below. The original claims have been rewritten in order to better describe the structure which goes to make up the device.

Summary of differences with the invention claimed in U.S. Patent No. 5,663,831:

a) As can be seen from the claims of U.S. Patent No. 5,663,831 the invention is of a display that reproduces two different images for the left and the right eye that can be seen in a special viewing zone. Hence this invention reproduces only binocular parallax depth perception cue. In particular Mashitani et al. claims in claim 1 to have two separate projectors each dedicated to a different eye. In our invention, however, the display reproduces all four physiological depth perception cues: accommodation, convergence, binocular parallax and monocular movement parallax. Our invention accomplishes this goal by reproducing directional distribution of light of a three-dimensional scene shown on the display.

b) Mashitani et al. uses a diffusing plate in every embodiment of the invention. The image is formed on a diffusing plate and is seen through a parallax barrier. Our invention, on the other hand, does not use any diffusing plates. In fact, it would not work with a diffusing plate. The whole purpose of our invention is to reproduce a directional distribution of light from some three-dimensional scene. And this distribution is achieved, as shown on FIG. 1, by modifying color and intensity of a collimated light

beam 4 from a backlighting means and then directionally distributing it using a lens array 2 and an aperture screen 3.

c) Even though Mashitani et al. uses an aperture screen (30) with a plurality of apertures (32), said aperture screen is actually a diffusing plate (column 6 lines 28-35) and bears a different function than the function of the aperture screen in our invention. Our invention does not use a diffusing plate and in fact would not work if apertures in the aperture screen would diffuse light as they do in the invention by Mashitani et al. Our claims have been modified to clearly specify this fact. The invention described by Mashitani et al. uses aperture screen to minimize the crosstalk between the left and right eye regions. Our invention uses aperture screen to avoid reflections from the lens array and to minimize the parasite light. When used with non-perfectly collimated backlighting means the aperture screen blocks rays that are not collimated. It is important to note that lack of aperture screen in our invention possibly results in a decreased sharpness of the image whether lack of the aperture screen in the invention by Mashitani et al. results a greater crosstalk region and possibility of viewer seeing two images at once by the same eye.

d) In the invention described in U.S. Patent No. 5,663,831 the viewer has to be at a predetermined distance from the display (column 5, lines 14-19). Our invention, on the other hand, does not have any restrictions on the position of the viewer other than that the

viewer has to be far enough from the display to not notice the granularity of the image. There are no viewing zones in our invention, but there is a wide angle of view where the image looks completely three-dimensional.

10. The invention claimed in original application's claims 1, 3-4 and 13 is different from what is claimed by Matsumura et al., U.S. Patent No. 6,246,451. The summary of differences between the two inventions is outlined below.

a) As can be seen from the claims of U.S. Patent No. 6,246,451 the invention is of a display that reproduces two different images for the left and the right eye that can be seen in a special viewing zone. Hence this invention reproduces only the binocular parallax depth perception cue. In particular Matsumura et al. claims in claim 1 to have a device that displays a striped image, where one set of stripes is devoted to the left eye and the other to the right eye (column 14, lines 16-24). Our invention reproduces all four physiological depth perception cues: accommodation, convergence, binocular parallax and monocular movement parallax. Our invention accomplishes this goal by reproducing directional distribution of light of a three-dimensional scene shown on the display.

b) As can be seen from claim 1 of U.S. Patent 6,246,451 the invention uses a spatial light modulator to display a striped image which is obtained by dividing left and right parallax images into stripes. In our invention, on the other hand, the spatial light modulator displays an array of elemental images, each of which is a projection of the

three-dimensional scene shown on the display. Each elemental image carries color and intensity information for a range of direction, not just the left or the right eye.

c) Matsumura et al. uses a diffuse light source (10), while our invention uses either a non-diffuse light source such as a collimated light source or a light source with some diffuse properties but an aperture screen is used in this case to accommodate for diffuse nature of the backlighting means.

d) As it can be seen from FIG.4 of the U.S. Patent 6,246,451 the display shows a three-dimensional image in special viewing zones. There are regions where the viewer is able to see one image with the left eye and the other with the right eye. However this requires the viewer to be at a certain location and at a certain distance from a display. Being anywhere else may result in cross talk and disappearance of the three-dimensional effect. Our invention, on the other hand, does not have any restrictions on the position of the viewer other than that the viewer has to be far enough from the display to not notice the granularity of the image. There are no viewing zones in our invention, but there is a wide angle of view where the image looks completely three-dimensional.